

# Esports Viewership and Customer Engagement: The SMITE Case Study

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December 2018

## Executive Summary

The video game industry is increasingly invested in competitive gaming (esports) and content distribution (streaming). These activities have the potential to increase consumer interest and engagement with specific game titles. However, the return on these investments is indirect and difficult to measure. In this report, we examine the impact of esports viewing on subsequent consumer behaviors such as playing rates and purchasing activity. Specifically, we study the impact of esports viewership using a sample of players of SMITE by HI-REZ Studios. For this study we focus on 2017 SMITE Pro League programming streamed through Twitch from the Official HI-REZ SMITE channel.

The challenge in analyzing the impact of esports viewing on consumer behavior is that there is no pure experimental setting with random assignment to either treatment (watch esports) or control (non-watching) groups. If players who are more highly engaged with a title are also more likely to watch content focused on that title, then we would expect that esports watchers would tend to have higher playing and purchasing rates. However, it would be a mistake to attribute the higher engagement to watching esports as both the higher engagement and viewing behaviors are due to differences in underlying preferences.

In order to account for the systematic differences that occur between esports consumers and players that do not watch esports via streaming services we use propensity score matching to select a subsample of non-watchers who are very similar to the sample of watchers in terms of game usage, game performance and spending rates. We find that viewing esports increases customer engagement on multiple dimensions. Specifically, we focus on three dimensions of engagement:

1. Playing Rates
2. Game Skills
3. Purchasing

In terms of key findings, esports viewers play about 40% more than non-watching “comparable” players do. In terms of spending, esports viewers are about 50% more likely to make in-game purchases than non-viewers are.

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2. The paper is a simplified version of a more detailed “academic” paper that includes more detail, presents additional analyses and utilizes additional statistical and machine learning techniques.

## 1. Introduction

The video game industry is rapidly becoming the dominant force in the entertainment sector. With global revenues in the range of \$140 billion the video gaming industry has surpassed the global film industry box office (\$40 billion) and far outpaces major American professional sports leagues such as the NFL (\$14 billion) (Eli 2018; Ingraham 2018; McClintock 2017). The video game industry growth is driven by a variety of digital technology trends. Technologies such as on-demand video streaming increasingly facilitate interaction with games and associated game based communities.

One increasingly important aspect of the video game industry is the growth of competitive gaming, most commonly referred to as esports. The rise of esports is particularly interesting from a consumer behavior perspective as it creates new opportunities for players to engage with games and associated communities. Video games are distinctive among entertainment products in that consumers have a greater ability to interact with the product. Unlike movies, television or sports, the consumer or player is an active participant in the entertainment. Streamed esports content is another interesting element of the video game sector. While direct play allows the consumer to interact with the game and other players, streamed content on platforms such as Twitch and Mixer provides a focal point for larger esports communities.

The purpose of this report is to investigate the impact of esports viewership on consumer engagement. Establishing linkages between watching sports or entertainment and subsequent consumption decisions is an important but challenging marketing topic. The topic is important because free programming (or game play) is offered as a means of brand building that marketers hope to monetize later. The topic is challenging because it is often difficult or impossible to directly link viewing data to purchasing data.

Connecting viewing and subsequent consumer usage and purchasing decisions is critical in the video game industry because of the frequent use of Free-to-Play (FTP) business models (Deng et al. 2018; Gu et al. 2018; Hamari et al. 2017; Mulligan et al. 2018). In FTP business models, the game must create sufficient player engagement to motivate consumers to shift from being players to becoming buyers. Esports and associated programming may provide a critical tool for creating this level of engagement. Streamed esports, game commentary and programming may enhance engagement by increasing player knowledge and fostering a community around games.

The challenge in quantifying the relationship between esports viewership and gaming behavior is that exposure to esports programming likely varies systematically across video game consumers. In other words, there are likely significant differences in preferences and other characteristics between players that consume esports content on streaming services and players that do not. This is a problem because any differences in subsequent consumption behaviors such as purchase or playing rates may be the result of the same underlying trait or traits that led the player to watch esports.

We organize the report as follows. We begin with a brief discussion related to fandom, “Free” business models and customer economics. This discussion provides the foundation for the subsequent analyses presented in the report. We next describe the data and sample construction. We then describe the analysis and report key findings. The paper concludes with a brief discussion.

## 2. Foundations

Considering the impact of esports on consumer engagement is best accomplished by first establishing several core concepts related to consumer behavior and the business models used in the video game industry. First, the foundation for any study of consumer behavior should be begin with the nature of consumer loyalty or brand-consumer relationships in a category. This is especially important in esports where consumer passion may rise to fanatical levels. The second area we touch upon is concerned with the frequent use of “Free” business models in the video game sector. The industries’ reliance on optional payments by consumers highlights the importance of creating very strong relationships between players and games. Third, we briefly discuss several concepts related to customer relationship management such as customer lifetime value. A long-term or dynamic perspective on player management is especially important in gaming where customers may engage with a game over multiple months or years.

**Fandom.** Fandom is an extreme form of consumer loyalty. While many consumer brands such as Coca-Cola or Nike enjoy significant consumer loyalty, entertainment and sports brands often achieve fanatical levels of loyalty. The passion of a Chicago Cubs or Beyoncé fan tends to dwarf what is achievable for most brands. Customer passion or engagement is an incredibly valuable asset for a brand. High equity brands have consistently been found to be able to extract price premiums and enjoy greater loyalty (Hoeffler and Keller 2003).

The academic marketing literature has long been interested in the concept of consumer loyalty. In particular, brands are interested in the idea of building relationships with consumers (Fournier 1998). Fournier (1998) conjectures that strong brand-consumer relationships need to be interactive and provide purpose to consumers. Competitive online games and streamed esports content provide opportunities for game producers to create especially strong and economically valuable relationships with players.

One of the limiting elements of traditional brand consumer relationships is a lack of true two-way interaction between the consumer and the brand. In traditional marketing settings, the brand-consumer relationship is one-sided. The brand advertises to, or talks at, the consumer and the consumer’s opportunities for feedback are extremely limited. In the digital gaming world, the consumer directly interacts with the game and with other gamers. Compared to other entertainment categories where viewers passively watch programming, the video game player is an active participant in the entertainment.

The digital environment may also provide possibilities in terms of increasing the importance or purpose of the relationship between a game and players. The advent of streamed content on platforms such as Twitch, YouTube and Mixer provide opportunities for shared consumption experiences. Shared consumption experiences can strengthen brand or gaming communities. A vibrant gaming community is important as it can foster a sense of purpose in players.

Collectively, these opportunities for interaction and community are ingredients that can create highly engaged or fanatical consumers. Games benefit from being pleasurable entertainment products that consumers can enjoy. Adding a vibrant and interactive community can push the player-game relationship to the level of fandom.

**“Free” Business Models.** The academic literature has devoted some attention to “Freemium” business models (Gu et al. 2018). This literature has emphasized business models that involve providing an inferior version of a product as a free version. The classic challenge in this literature is determining the ideal level of product degradation that balances customer trial of the free version and consumer willingness to upgrade to the premium or pay version.

While Free-to-Play (FTP) business models used in competitive gaming are a form of a Freemium business model, there are elements of gaming culture that are important to consider. The most salient factor is that multiplayer gaming requires competitive balance (Lewis 2008). This means that the revenue models of FTP as opposed to Pay-to-Win (PTW) must provide consumers with value that does not influence game outcomes. The issue of competitive balance is especially important given the culture of the competitive gaming community. Keeping gameplay fair is important in a community that values merit.

The factors that drive fandom such as opportunities for social identity and participation in shared communities are also relevant to the operation of FTP business models. Communities tend to have hierarchies and members often wish to highlight their participation in a group. FTP business models often emphasize aesthetic items that make a player more conspicuous but do not alter gameplay. For example, a player may use the purchase of an aesthetic item such as a “skin” to become more prominent in the gaming community.

**Customer Lifetime Value.** The preceding discussion of fandom and business models highlights the importance of Customer Relationship Management in the video game sector. The technological foundations of the industry and the nature of the product provide opportunities to generate consumer engagement or fandom that surpasses most product categories. However, the voluntary payment based business models complicates revenue generation.

This situation means that video game producers need to consider how consumer behavior interacts with current business models that rely on voluntary transactions. The industry may benefit from understanding how different aspects of the gaming experience increase the value of its customer assets. Specifically, there may be benefits to viewing players in terms of concepts such as Customer Lifetime Value (CLV) and Customer Equity.

While a full discussion of Customer Lifetime Value analysis (Lewis 2005) is beyond the scope of this document, the basic idea of these models is that customers are economically valuable assets. CLV concepts may be used in multiple ways. For example, game producers may leverage data from CRM to identify player segments that are especially passionate and profitable. The preceding discussion suggests that increasing levels of interaction, community engagement and signaling by consumers are likely to be correlated with levels of engagement or fandom. It seems likely that these indicators of fandom would also be correlated with customer value to the producer.

Game producers can also take a more active approach and try to develop marketing policies that increase CLV. When firms adopt this perspective, the objective of marketing efforts are to increase retention and spending. Marketing can only achieve the goal of maximizing CLV by understanding how different policies and behaviors relate to retention and spending (Khan et al. 2009). For example, if we discovered that increased engagement from esports viewing decreases churn or increases spending rate then we might ask questions about the best ways to encourage esports viewing.

While the focus of the current research is not directly on CLV measurement or management, the underlying research question is very much concerned with the economic value of a game's customer base. The fundamental question we address is whether supplementary content such as esports has a positive influence on customer engagement levels with the base game product. Creating engagement in an economically efficient manner is the key to creating a valuable customer base.

### **3. Data and Sample Construction**

To investigate the influence of esports and other streaming content on player behaviors we focus on registered users of the game SMITE who are active players before and during the 2017 SMITE Pro League Summer Season. Specifically, we construct a sample of SMITE players who reside in the USA, play via a PC (not console) and who are active in the 8 weeks prior to the SMITE pro season (from 04/09/2017 to 06/04/2017) and during the season (06/05/2017 to 07/30/2017). This sample consists of 57,353 players. We also track the sample for the 8 weeks following the SMITE Pro Season. These players all initially registered during a relatively brief time period.<sup>1</sup> We show the data collection intervals in Figure 1.

Basic playing and purchasing statistics for the sample during the pre-period (8 weeks before the SMITE Pro League) are provided in Table 1. On average, players in the sample participated in 85 sessions during the pre-period and played about 1,500 minutes. The proportion of players that made any purchase (skins, character packs, etc...) was 18%. The table also includes measures related to in-game performance including average win rate, average kill rate and total gold.

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<sup>1</sup> In order to protect confidential information such as customer acquisition rate we do not report details such as the length of time for sample registration.

Figure 1: Data Analysis Observation Window

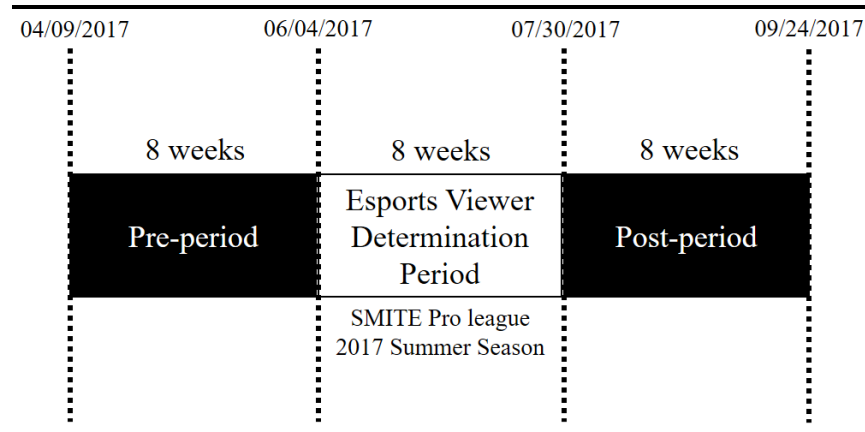


Table 1: Population Statistics

<i>Variable</i>	<i>Mean</i>	<i>Bottom 10%</i>	<i>Top 90%</i>
Total Play Minutes	1,504.09	21.033	4,402.55
Total Play Sessions	85.265	2.000	246.000
Average Winning Rate	0.532	0.250	0.857
Average Kill Rate	0.480	0.200	0.714
Total Gold Obtained	22,449.8	7958.83	32,484.7
Spender Proportion	18%		

In terms of esports viewership, 5,777 of the 57,353 players watched programming on the Official SMITE Twitch channel during the SMITE Pro Season. The sample of esports viewers is therefore about 10% of the overall population of players. While the digital gaming ecosystem provides unprecedented opportunities to link viewing to purchasing and consumption, there are still limitations on our ability to observe consumers. For example, we are unable to observe Twitch viewing by players that do not link their Twitch accounts to their HI-REZ accounts.<sup>2</sup>

Table 2 shows a comparison between the esports viewing segment and the non-watching segment. This table reports playing statistics and purchasing rates during the 8 week pre-period before the SMITE Pro Season. A simple comparison of the two groups reveals dramatic differences in playing and spending. Esports watchers play 120% more minutes than non-streamers and enjoy a slightly higher winning rate. In terms of purchasing, watchers are more than twice as likely to make in-game purchases as non-watchers.

<sup>2</sup> This limitation results in a more conservative analysis because some viewing of streamed content may occur in the non-watching segment. This will result in a conservative bias if watching streamed content increases purchases and playing rates. The effect of watching streamed material is biased downward because some members of the non-treated (non-watching) population are exposed and, therefore, influenced by streamed content.

Table 2: Esports Viewers (Treated) versus Non-watchers (Untreated)

Variables	Esports Viewer Status		Difference
	Treated (N=5,777)	Untreated (N=51,576)	
Total Play Minutes	2,958.910	1,341.130	<b>+1,617.780</b>
Average Winning Rate	0.546	0.531	<b>+0.015</b>
Average Kill Rate	0.521	0.475	<b>+0.046</b>
Total Gold Obtained	22,602.500	22,432.740	169.760
Spender Proportion	33.5%	16.1%	<b>17.4%</b>

Note: Bold represents a statistically significant difference at 1% level.

These simple comparisons suggest that the population of watchers and non-watchers are fundamentally different in terms of their engagement with the game. Watchers are much heavier consumers in terms of play and more likely to make purchases. This suggests that there is some underlying difference in preference for SMITE across the two segments. This creates an empirical challenge. The issue is that any differences in response to exposure to esports may be due to differences in underlying preferences or to the watching of esports. In order to address this issue of alternative explanations, we need to eliminate the systematic differences across the sub-populations of watchers and non-watchers prior to the Pro League season.

#### 4. Analysis

The purpose of our inquiry is to measure how exposure to streamed esports influences player behavior. A simple approach to this analysis would assume that any differences in behavior across the watching and non-watching segments in the post-period that follows the SMITE Pro League is due to exposure to the streamed content. This would involve an implicit assumption that watching esports via Twitch was the equivalent to an experimental treatment. However, the preceding comparison of watching and non-watching segments suggests that the populations that watch and do not watch are systematically different.

Our objective is, therefore, to first create samples of watchers and non-watchers with similar levels of engagement with SMITE during the pre-period. We do this using Propensity Score Matching (PSM) (Angrist and Pischke 2008; Chan and Ghose 2014; Imbens 2000). The idea behind propensity score matching is that being treated (in this case watching esports) is not randomly determined. Rather, being treated is a function of individual player traits. The goal in PSM is to find non-watching players that possess similar observable characteristics as the players that watch esports.

The core of the propensity matching procedure is a logistic regression model (unreported) that predicts watching the HI-REZ official SMITE channel during the 2017 Pro League schedule. The covariates used in this model are a collection of variables that characterize player behaviors in

the pre-period. These include variables related to playing rate such as minutes played, variables that indicate skill level such as winning rates, and variables that reveal propensity to spend such as history of actual money spend. We match the 5,777 watchers (treated) members of the sample with members of the non-watching population with similar propensity scores. The matching uses a nearest neighbor procedure. The result is a sample of 5,777 non-watchers.

Table 3 shows how the matching procedure produces very similar groups of treated (watchers) and untreated (non-watchers) players. There is minimal difference in the post matching groups in terms of playing time, game skills and spending. This suggests that the matched samples are very similar in terms of engagement or interest in the game in the period prior to the SMITE Pro League. For example, esports viewers played an average of 2,960 minutes in the pre-period compared to an average of 1,341 minutes for the non-watchers. However, for the matched sample of non-watchers the average playing time is 2,975 minutes. There are no significant differences in the reported variables across the samples after matching.

Table 3: Gaming Behavior Before and After Matching

Variables	Esports viewers (Treated gamers)	Non-watchers (Untreated gamers)			
		Before Matching		After Matching	
	Mean	Mean	Difference	Mean	Difference
Total Play Minutes	2,958.910	1,341.130	<b>1,617.780</b>	2,974.720	-15.810
Average Winning Rate	0.546	0.531	<b>0.015</b>	0.542	0.004
Average Kill Rate	0.521	0.475	<b>0.046</b>	0.521	0.000
Total Gold Obtained	22,602.500	22,432.740	169.760	23,885.220	-1,282.720
Spender Proportion	0.335	0.161	<b>0.174</b>	0.332	0.003
Gamer Tenure	74.047	62.745	<b>11.302</b>	73.905	0.142
Propensity Score <sup>a</sup>	0.158	0.094	<b>0.064</b>	0.158	0.000

Note: Bold represents a statistically significant difference at 1% level. <sup>a</sup>: Probability of becoming an esports viewer.

## 5. Results

Exposure to esports may affect players in a variety of ways. The basic hypothesis that motivates the analysis is that exposure to esports results in increased player engagement. However, engagement may be expressed through multiple types of behavior. In terms of the available data, we are able to monitor changes in terms of players' game consumption, game skills and game purchases. These are all important metrics as there may be positive feedback effects across game play, game success and purchasing behavior.

**Game Consumption.** Table 4 provides comparisons of esports viewers and matched non-watchers in terms of game consumption. We observe significant differences between the groups. The esports viewers participate in about 126 sessions during the 8 week post-period that followed the SMITE Pro Season compared to 91 sessions for non-watchers. This represents a 38%



increase in game sessions. In terms of minutes played, the esports viewers played 44% more minutes than the non-watchers.

This increased game play may be the most important element of increased engagement. In many consumer categories, there is a strong link between product usage and increased retention. If esports viewing inspires increased play, it is likely that consumers will be more active and interested. Greater usage is likely to lead to stronger game-consumer relationships and increased retention.

Table 4: The Effect of esports on Game Usage in Post-period (8 weeks)

Variable	Group	Mean	Std.
Total Play Sessions	Non-watchers (Untreated)	91.163	133.577
	Esports viewers (Treated)	125.796	140.014
Total Play Minutes	Non-watchers (Untreated)	1,670.090	2,472.270
	Esports viewers (Treated)	2,410.950	2,725.830

**Game Skills.** Brand-consumer relationships are often strongest for the most expert customers. Expertise is important because players may be more likely to identify as SMITE players if they are more successful at the game. It is possible that esports viewership will increase expertise through exposure to high-level play or commentary that reveals successful game tactics.

Table 5 compares esports watchers and matched non-watchers in terms of in-game success. Esports viewers win significantly more and have higher kill rates. The win and kill rates are both about 20% higher for the esports viewers. We also compared the samples in terms of earning of in-game currency (gold). On this dimension, the esports viewers have only a slight advantage. This set of results is interesting in terms of consumer behavior theory. It appears that exposure to esports results in increased player skill levels or expertise. This increased expertise may drive other elements of engagement.

The pre-period win and kill rates were higher for both segments relative to the post-period. Our speculation is that there is a general downward trend in performance because players are progressing to higher levels and therefore playing more skilled opponents. The key finding is that the esports watchers have a smaller reduction in in-game performance relative to the drop-off experienced by non-watchers. The key is that esports watchers tend to outperform non-watchers and may therefore have a more pleasurable gaming experience.

Table 5: The Effect of esports on Game Skills in Post-period (8 weeks)

Variable	Group	Mean	Std.
Average Win Rate	Non-watchers (Untreated)	0.372	0.268
	Esports viewers (Treated)	0.445	0.233
Average Kill Rate	Non-watchers (Untreated)	0.375	0.253
	Esports viewers (Treated)	0.451	0.223
Total Gold Obtained	Non-watchers (Untreated)	19288.370	45916.620
	Esports viewers (Treated)	20304.360	33739.250

**Game Spending.** The ultimate manifestation of consumer engagement is purchasing. This may be especially true in the FTP video game category. Decisions to spend are voluntary and may be motivated by multiple consumer goals or needs. For example, some players may spend on aesthetic items to increase status within the gaming community. Others may make purchases based on a desire to support a game that they enjoy.

Table 6 compares purchase incidence across the watching and matched non-watching samples. For the esports watchers about 30% of the group makes an expenditure during the 8-week post-period compared to 20% for the non-watchers. Notably, during the pre-period about 33% of each group made a purchase.

This data suggests that esports driven engagement may act as a relationship maintenance tool. While the non-watchers spending incidence dropped by about 50% from the pre-period to the post-period, the watchers showed only about a 10% decline. The viewing of esports seems to act as a maintenance tool in terms of spending.

Table 6: The Effect of esports on Game Spending in Post-period (8 weeks)

Variable	Group	Mean	Std.
Spender proportion	Non-watchers (Untreated)	0.203	0.402
	Esports viewers (Treated)	0.302	0.459

This type of relationship preservation may have significant impact on long-term customer value (CLV). We illustrate the impact through a simple CLV calculation. For this demonstration, we assume that the initial purchase incidence rate for non-watchers and watchers is 30% and the average expenditure conditional on purchase is \$30. We also assume that retention (in terms of spending) drops by 10% for esports viewers versus 50% for non-watchers every eight weeks. Under this set of assumptions, the esports watchers have a 2 year CLV of about \$67 compared to a CLV of only about \$18 for the non-watchers.

**Variation in Viewing Rates.** Thus far, we have considered esports viewing as a yes or no type of treatment. We next consider the possibility that behavioral changes are based on the level of esports viewing. To accomplish this, we divide the esports viewers into light watchers, medium watchers and heavy watchers. The light watchers viewed an average of 40 minutes of the SMITE Pro League official programming, the medium watchers viewed an average of 280 minutes and the heavy watchers viewed on average, 1260 minutes of content. This division represents the top, middle and bottom third of watchers. Table 7 shows the sample sizes, average esports watching and the standard deviation of watching during the SMITE Pro Season.

Table 8 compares the populations of non-watchers to light, medium and heavy esports watchers. In terms of game usage, we observe a positive association between level of viewing and activity. Non-watchers participate in 91 sessions compared to 106 sessions for light watchers, 128 sessions for medium watchers and 143 sessions for heavy watchers. A similar pattern holds for minutes played.

Table 7: Player Segments

Esports watch	Group definition	N	Esports watch minutes	
			Mean	Std Dev
No	Non-watchers (untreated)	5,777	0.000	0.000
	Esports viewers (Light group)	1,926	40.450	32.097
	Esports viewers (Medium group)	1,920	280.626	120.178
	Esports viewers (Heavy group)	1,931	1,259.574	681.740

However, for other metrics of engagement we observe diminishing returns to additional esports watching. For example, for the average winning rate we observe improvement for light watchers relative to non-watchers and a significant difference between light and medium viewers. However, there is little difference between the medium and heavy viewing populations.

In terms of variables related to customer economics, we see a similar pattern as with the in-game statistics. For the non-watchers the spending rate was 20%. For the light watchers this increases to 27%. For the medium and heavy watchers the spending rate is just above 30%. In terms of player churn, about 26% of non-watchers do NOT play in the post-period. For light watchers, churn is reduced to 17%. For the medium and heavy watchers, the churn rate is around 15%.

Table 8: Heterogeneous Effect of eSports on Gamer Behaviors in Post-period (8 weeks)

Variables	Non-watchers	Light Watchers	Medium Watchers	Heavy Watchers
Total Play Sessions	91.163	105.799	128.230	143.321
Total Play Minutes	1,670.090	1,994.950	2,454.110	2,782.950
Average Winning Rate (%)	0.372	0.426	0.454	0.454
Average Kill Rate (%)	0.375	0.431	0.461	0.459
Average Gold Obtained	19,288.370	21,839.300	20,742.820	18,337.420
Spender Proportion (%)	0.203	0.273	0.321	0.313
Churned Gamer Proportion (%)	0.259	0.171	0.134	0.150

## 6. Discussion

The analysis presented above represents a preliminary investigation into the effects of esports programming on video game player engagement. In terms of methodology, we use logistic regression and propensity score matching to create a quasi-experimental framework to compare the future behavior of similar groups of players that differ only in terms of exposure to esports programming. The “treatment” in this experimental framework is viewing of the SMITE 2017 Pro League through Twitch.

Our results suggest that exposure to esports has significant beneficial effects on customer engagement. Players who watched esports play more, play better and spend more. This represents a virtuous cycle of engagement. Esports provides an educational and community building platform that helps maintain player interest in a game.

The positive impact of esports on video game players is consistent with expectations derived from consumer psychology. Brand preference increases when brand-consumer relationships have purpose and are interactive. Esports may give the game-player relationship more purpose because it provides additional connections to and awareness of the community involved with the title. A high profile pro league with intense competition and passionate fans can build a game community that players want and benefit from belonging to. Esports also provides increased opportunities for interaction as streamed and live events may provide a focal point for a community with whom a player can directly interact.

While the results demonstrate a positive relationship between esports consumption and player engagement, the managerial implications should be considered carefully. We must emphasize that the esports viewing considered in the analysis was not driven by marketing or promotional activity. If a game producer were to provide incentives for watching esports, it is unclear whether our results would continue to hold. For example, if a promotion such as a free skin is used to motivate players to link streaming and game accounts, the analyst would need to treat that player's subsequent esports viewing as conditional on having received the promotion. More generally, when marketing promotions are used to acquire customers such as esports viewers, it becomes important to understand the link between acquisition promotions and subsequent customer behavior (Lewis 2006).

The results also highlight that a relatively small number of players are likely to produce a substantial share of revenues. This type of finding is consistent across most industries. In particular, the differences in spending and churn rates across populations that vary in terms of viewership levels suggests that significant differences in CLV exist across the portfolio of customers (players). Managerially, this finding suggests that video game producers may wish to construct rewards systems that emphasize retention of the high value CLV segment.

There are multiple opportunities for additional analyses. We designed the current analysis to demonstrate the impact, if any, of esports viewing on customer engagement over a limited timeframe. It may be desirable to consider more fully the long-run impact of esports viewing on metrics such as customer lifetime value (CLV) or customer equity. This type of analysis would provide guidance in terms of setting esports investment levels. It may also be useful to consider richer descriptions of esports consumption. Our treatment was viewing a game's official channel. We did not evaluate the impact of streaming non-official channels. In addition, we did not consider the type of programming watched. It is conceivable that different types of programming or hosts might have a differential effect on customer engagement.

A crucial research question relates to the why of esports viewership. Only about 10% of the overall sample streamed official content during the pro season. This level of viewership suggests that there may be insufficient promotion related to the esports component. It may also indicate that only a limited percentage of players is interested in viewing competitive gaming. Data on historical trends and information of esports promotion would be useful for analyzing the factors that drive and hinder esports viewing.

Finally, we acknowledge several assumptions. For instance, we constructed the sample using a specific definition of “active” players. We defined active players as any player that played at least one session of SMITE during the pre-period and during the treatment-period. Many different alternative definitions of “active” may be used. For example, we repeated the analysis using a definition of active that required that players played at least one session during each of the 16 weeks of the pre and treatment periods. Directionally, our results held across the two definitions of active. In addition, our definition of exposure to esports was that the player streamed programming from the SMITE official channel on Twitch. This is only one potential definition. Alternatively, the analysis could have considered SMITE programming on non-official channels or defined a different threshold of minimal viewing.

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